

ABSTRACT OF THE DISCLOSURE

[21] The hybrid wire of the present invention comprises approximately 1% Wt to 30% Wt of non-metallic ingredients, with the preferred concentrations selected from the range from about 5% Wt to about 15% Wt. Non-metallic compounds and metallic oxides, which were added to the tubular wires and found to perform well in the SAW process, are CaO, MgO, MgAl, K₂O, CaF₂, MnO, NaAlF₆, and K₂AlF₆. Adding one or more of the listed compounds to the core composition of the tubular wires leads to an improvement of the welding performance in a SAW process due to the properties of core of the wire, while reducing the importance of the granular flux.